The June 2003 *Nokia Consent Decree* also speaks to the Commission's acceptance of Joint Petitioners' interpretation of call completion. There, as detailed above, the FCC's Enforcement Bureau approved a compliance program to train certain Nokia employees on topics related to compliance with Section 22.921, such as "the 17 second requirement and the Commission regulations related to emergency call processing."[72] This approved training program specifically recognized that a call is deemed successful with the assignment of a voice or traffic channel.[73] Nokia has used the training guideline and the six principles of compliance referenced in the *Nokia Consent Decree* to train over 850 employees in the U.S. and abroad.

These rulings fully support Joint Petitioners' interpretation of the *Second Report and Order* and are fully consistent with that decision. The *Second Report and Order* did not adopt plaintiffs' interpretation of call completion. Nor did it put in motion—or even hint at requiring—the numerous technical and regulatory changes that would have had to accompany the adoption of plaintiffs' interpretation. Instead, the *Second Report and Order* formulated an effective, flexible system of 911 call processing that could be made available to consumers quickly and relatively inexpensively and that could accommodate new and innovative call processing methodologies—without necessitating substantial changes in underlying call processing standards.

To further these goals while at the same time increasing the likelihood that 911 calls would reach emergency personnel, the Commission adopted a 17-second time limit for the initial attempt. Nowhere, however, did the Commission require that a 911 call be handed off to the

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[72] *See Nokia Consent Decree*, ¶ 9, App A.

[73] Specific details of the compliance program were submitted to WTB separately. *See Nokia Request* at 2.

landline carrier or answered by a 911 operator—much less that handsets know that a 911 call had reached these junctures—within 17 seconds To the contrary, the FCC clearly and consistently discussed the 17-second limit in terms of access attempts:

- "[T]he IR algorithm should be such that, in any case, the handset would not spend more than a reasonable amount of time *seeking to complete* the call with the preferred carrier before reattempting the call with the other cellular carrier."[74]

- "To minimize this possibility [of callers terminating 911 calls due to long call set-up times], while also allowing a reasonable period for initial call set-up to the non-preferred carrier, we conclude that a time limit should be placed on the *initial attempt* to set-up the call with the preferred carrier "[75]

- "The 17 second time limit for the *initial call attempt* with the preferred carrier will further limit such delays when the call cannot be handled by the preferred carrier for other reasons as well as limiting possible lock-in problems."[76]

As the foregoing makes clear, the purpose of the Commission's 17-second limit was to help ensure that call setup not be delayed. This language also reveals that the 17-second limit was meant to act as a *proxy* for the determination whether a call has been delivered to the landline carrier. In other words, if the handset has not received a voice channel assignment within 17 seconds, then it is less likely that the call will be connected to the landline carrier on the preferred system, and the handset therefore should attempt the call on the next system.[77] That is undoubtedly why the Commission stated that in formulating a 17-second time limit, it

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[74] *Second Report and Order* ¶ 40 (emphasis added).

[75] *Id.* (emphasis added)

[76] *Id.* ¶ 79 (emphasis added).

[77] *Second Report and Order* ¶ 41 ("The 17-second period is also generally consistent with the combined time periods for two basic call processing tasks that must be performed and completed if a call attempt is to be successful after the call is sent: in the first task, a handset waits up to 12 seconds to receive a voice channel assignment from a base station; in the second task, the base station waits up to 5 seconds to receive a voice channel transmission from the handset." (citations omitted)).

was "seeking to ensure that communication between the handset and base station on the voice channel goes beyond Conversation State and reaches the point where the handset's voice channel transmission is indeed received at the base station."[78]

None of this discussion supports plaintiffs' proposed interpretation. To the contrary, the monitoring and signaling that would be required by plaintiffs' interpretation is simply beyond the knowledge or control of handsets manufactured under existing technical standards. If plaintiffs' interpretation were correct

- The Commission would have clearly and unambiguously *required* handsets to go beyond assignment of a voice channel since under the A/B-IR methodology, as presented to the Commission, a call was clearly considered complete with voice channel assignment.

- The Commission would have expressly stated that the A/B-IR method would require major, expensive changes to handsets, transmission equipment, wireless networks, and landline networks.

- The Commission would have set in motion the standards-setting and regulatory processes necessary to effectuate those changes. The FCC would have made it clear that numerous third parties –including wireless and wireline carriers, base station manufacturers, and standards bodies—would need to take significant actions and implement significant changes in their own systems and networks in order to implement these changed requirements, and the FCC would have imposed specific obligations on these third parties to ensure that they did so. In particular, the Commission would have made it clear that implementation of A/B-IR would require substantial changes in the underlying analog standards.[79]

- In contrast, the Commission would *not* have stated, as it did in the *Second Report and Order* and elsewhere, that the A/B-IR method approved therein would involve minor, inexpensive modifications to the software of the handsets only.[80]

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[78] *Id.* at n.52.

[79] As Attachment 2 makes clear, a review of the applicable requirements shows that the changes sought by plaintiffs in call completion would have required dramatic changes in Commission-sanctioned analog standards. Attachment 2 at 5-6.

[80] *Second Report and Order* ¶ 35; *see also Nokia Ruling* at 1 n.4 (FCC's "implementation of [Section 22.921] would require a relatively minor change to the phone's programming").

- The Commission would have given all affected parties many months or years – not just nine months – to comply since these revisions, not to mention the manufacture and installation of compliant equipment and networks, would have required major technical changes.

Each of these acts would have been necessary for the Commission to accomplish WCA's preferred call completion methodology Yet, as further explained below, the FCC did none of them – precisely because the agency determined to work within existing standards in order to give American consumers effective 911 call completion within the shortest time possible.

1. The Second Report and Order Clearly Indicates that the A/B-IR Method Approved Would Involve Minor, Inexpensive Modifications to the Software of the Handsets Only and Would Not Require a Change in the Standards

In the *Second Report and Order*, the Commission made clear that the A/B-IR method it was approving· (a) would require only modest changes to handsets; (b) would not be unduly expensive to implement, and (c) would not take long to incorporate.[81] Plaintiffs' interpretation of call completion directly conflicts with all three of the Commission's goals.

As explained in Attachment 2, in an analog wireless 911 call, the handset searches for a forward control channel that will allow the handset to transmit data to the base station. When the handset detects a forward control channel, it sends the call information to the base station on the associated reverse control channel. The base station receives the call information and identifies an available voice channel, then assigns that voice channel to the handset. The handset then tunes to the assigned voice channel, and if the supervisory audio tone ("SAT") is detected, the call is considered complete by the handset. The handset *does not have and has never had* the technological capability to know whether transmissions are actually received by the base station

[81] *Second Report and Order* ¶ 35

or the landline carrier. As far as the handset knows, it has completed the call at the time of voice or traffic channel assignment if the SAT is detected.[82]

For a mobile handset functioning in analog mode to be capable of determining whether a base station actually has received a voice channel transmission, as plaintiffs claim is required, the mobile handset would need to undergo significant software, and potentially hardware, modifications. Indeed, implementation of plaintiffs' interpretation would undoubtedly have required some form of "answer supervision" technology—a change that would be very difficult to accomplish and could not be implemented by handset manufacturers acting alone.[83] The technology would need to confirm that the handset user was receiving good quality voice communication coming from the 911 operator; that the network was receiving good quality voice communications at the base station from the handset; and that the network was passing that traffic on to the 911 operator.[84] Moreover, the base station would have to be reprogrammed to send a confirmation message to the mobile handset that a voice communication was received.[85]

In turn, these changes would have necessitated extensive revision of underlying call processing standards. For example, the existing standard for analog calls, adopted by reference in Section 22.921, does not provide for any form of answer supervision such as voice channel adequacy or confirmation of voice communication delivery.[86] Likewise, TSB119, which implemented the *Second Report and Order*, contained only minor amendments to the underlying

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[82] *See* Attachment 2 at 2-3

[83] *Id.* at 5.

[84] *Id.*

[85] *Id.*

[86] *See id.* at 4.

standard.[87] In order to accommodate plaintiffs' interpretation, these and other standards would have to be extensively modified to provide for significant call monitoring and supervision so that a handset would know when a call has been passed on to the landline carrier or to some other point.[88]

These are the technical facts. In order to effectuate plaintiffs' interpretation, handsets, transmission equipment, wireless and wireline networks all would have been required to undergo major changes that would have been extremely expensive and time consuming to implement and would have required the active participation of multiple industry components. Clearly, however, the *Second Report and Order* contemplated no such dramatic changes in existing standards, equipment, or networks To the contrary, the *Second Report and Order* specifically stated that the call completion solution adopted by the Commission "requires only relatively modest changes in handset software that should not be unduly expensive and should not take long to incorporate into mobile units."[89]

Likewise, the FCC indicated that implementation of the *Second Report and Order* would not require extensive changes in the existing analog compatibility standard. The Commission was so confident that the requirements of the *Second Report and Order* would require only

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[87] *Id.* at 4. TSB119 required an emergency call status flag to highlight when a 911 call was being attempted, made provision for visual and/or audio feedback when an emergency call was placed, and required an emergency call failure status system so that the handset would know that an emergency call had failed to complete (i.e , that it had failed to reach Conversation State).

[88] *Id.*

[89] *Second Report and Order* ¶ 35. Notably, the Commission also believed that "a potential advantage of this approach is the fact that it may be adaptable to digital and multi-mode operations." *Id.*

modest standards changes that it elected to proceed without waiting for standards bodies to act.[90] Once again, plaintiffs' interpretation is directly contrary to the Commission's decision.[91]

2. Had the Commission Intended to Adopt Plaintiffs' Interpretation, It Would Have Said so Clearly and Unambiguously, and It Would Have Expressly Imposed Obligations on Certain Third Parties

If plaintiffs' interpretation were correct, the *Second Report and Order* would have clearly articulated the adoption of that interpretation, clearly explained to all parties affected the extensive standards and regulatory changes that would be necessitated by the adoption of that interpretation, and set in motion the processes necessary to effectuate those changes. The Commission did none of these things. Indeed, it did precisely the opposite by stating that any changes would be modest, relatively inexpensive, and could be quickly incorporated. Moreover, if plaintiffs' interpretation were correct, the Commission would have expressly described the impact of its ruling on third parties that would be affected by it, such as base station equipment manufacturers, wireline carriers, wireless carriers, and standard bodies, and the Commission would have imposed obligations on these third parties to take the necessary actions to ensure that handset manufacturers would be in a position to comply with the rules. Yet, the Commission never stated that such third parties would be directly burdened by the ruling and needed to take actions accordingly, much less impose obligations on these third parties.[92] Fundamentally, the

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[90] *Second Report and Order* ¶¶ 31, 90. The Commission stated, "we encourage groups such as standards bodies to consider improved 911 call completion approaches for other technologies and services. We do not believe, however, that we should delay taking action to await further review of these or other issues by standards bodies or other groups." *Id.* ¶ 90.

[91] Plaintiffs can hardly deny that such is the case. In fact, as indicated above, WCA specifically told the Commission that its preferred interpretation of call completion "WILL require a revision of the 553 standard, since the subscriber units do not currently possess this function." *See supra* note 55.

[92] *See* Attachment 2, Section E.

Second Report and Order contains no explicit or implicit adoption of plaintiffs' view—let alone any hint of the changes that would be necessitated by that interpretation.

Before the Court, Plaintiffs have based their interpretation on language in the *Second Report and Order* that refers to "deliver[ing] the call to the land line carrier if the preferred cellular carrier has not successfully delivered the call to the landline carrier within 17 seconds" and states that the goal is to obtain communication that "goes beyond Conversation State and reaches the point where the handset's voice channel transmission is indeed received at the base station."[93] Although the language in those paragraphs does not purport to define "call completion," plaintiffs have seized upon it to suggest that a call cannot be complete until the handset itself actually confirms that the call has been successfully delivered to the base station and the landline carrier

However, neither of these passages comes close to adopting plaintiffs' interpretation—let alone mandating the numerous standards and equipment changes that would be necessitated by it. At most, paragraph 41 and footnote 52 in the *Second Report and Order* are—as the Court has already found—ambiguous and do not come close to the legal clarity required of an administrative agency in imposing new obligations on regulated businesses.
Nothing else in the Commission's decision even arguably supports plaintiffs' interpretation put forth in the litigation, and they do not rely on any language other than this lone paragraph and single footnote

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[93] *Second Report and Order* ¶ 41 & n.52.

3. Adoption of Plaintiffs' Interpretation Would Have Required an Extended Implementation Period

If plaintiffs' interpretation were correct, manufacturers and other third parties would have needed far longer than the time allotted to implement the *Second Report and Order*. Indeed, as the Commission is aware, it took approximately 16 months just to formulate the relatively minor standards changes contained in TSB119. Consideration and adoption of the significant modifications that would have been required as a result of plaintiffs' interpretation would have required many more months or years That the FCC provided a relatively brief implementation schedule clearly indicates that the agency did not contemplate the extensive changes that plaintiffs' interpretation would require.

C. Acceptance of Plaintiffs' Interpretation of Call Completion Would Violate Well-settled Principles of Administrative Law and Procedure

Under the basic "notice and comment" requirements of the APA, 5 USC §553(b)-(c), adoption of plaintiffs' interpretation of call completion would have required notice by the Commission of a substantial change in the way that handset manufacturers, wireless carriers, and landline carriers process 911 calls. The FCC did not provide notice that it was considering such a substantial change to the analog standard in the *NPRM* released by the Commission in 1996.[94] Nor did the FCC adopt plaintiffs' position in the *Second Report and Order*. This is all, of course, evidence that the Commission never intended to impose such requirements under the 911 rules. But even if the FCC did intend to adopt plaintiffs' interpretation of call completion, the *Second Report and Order* did not provide sufficient notice of the rule's adoption. Ambiguous

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[94] *E911 Further NPRM*

language, such as that found in footnote 52 of the *Second Report and Order*, is not legally sufficient under the APA for the adoption of a rule.[95]

Furthermore, as a matter of procedural due process, any agency rule must give clear notice of its requirements prior to their enforcement. "Traditional concepts of due process incorporated into administrative law preclude an agency from penalizing a private party for violating a rule without first providing adequate notice of the substance of the rule."[96] Because the *Second Report and Order* does not provide notice that the FCC was adopting plaintiffs' interpretation of call completion, enforcement of this position would violate Joint Petitioners' right to due process. As the courts have found, "in the absence of notice—for example, where the regulation is not sufficiently clear to warn a party about what is expected of it—an agency may not deprive a party of property by imposing civil or criminal liability."[97]

Finally, adoption of plaintiffs' interpretation of the *Second Report and Order* would have required an extensive Final Regulatory Flexibility Analysis to discuss the significant new burdens placed on numerous small entities that adoption of the plaintiffs' interpretation would have necessitated.[98] The order itself clearly did not undertake or contemplate any such analysis.

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[95] Even if the Commission had intended for the *Second Report and Order* to adopt plaintiffs' position—which it did not—the *Second Report and Order* did not provide sufficient notice of such adoption. To see that sufficient notice of adoption was not provided, one need look no further than the fact that all of the Joint Petitioners independently and uniformly read the *Second Report and Order* to interpret call completion in the same way, and none understood it to adopt plaintiffs' position.

[96] *Satellite Broadcasting Co v. FCC*, 824 F.2d 1, 3 (D.C. Cir. 1987).

[97] *General Elec. Co. v EPA*, 53 F.3d 1324, 1328-29 (D.C. Cir. 1995). See also *Trinity Broadcasting of Florida, Inc v FCC*, 211 F 3d 618, 632 (D.C. Cir. 2000) ("Where, as here, the regulations and other policy statements are unclear, where the petitioner's interpretation is reasonable, and where the agency itself struggles to provide a definitive reading of the regulatory requirements, a regulated party is not 'on notice' of the agency's ultimate interpretation of the regulations, and may not be punished." (citing *GE*, 53 F.3d at 1333-34)).

[98] This analysis is required by the Regulatory Flexibility Act. 5 U.S.C. §§ 601 *et seq.*

Rather, the Commission's analysis clearly stated that the impact of the *Second Report and Order* will chiefly fall on cellular equipment manufacturers and that implementation "of the rule will be achieved through an equipment manufacturing requirement and the Commission's equipment authorization process."[99]

V. CONCLUSION

For the foregoing reasons, Joint Petitioners respectfully request that the Commission issue a declaratory ruling confirming that: (1) a call is deemed "complete" with the assignment of a voice or traffic channel; (2) "delivery of the call to the landline carrier" means transmission on an assigned voice channel; and (3) receipt of assignment of a voice or traffic channel is the task that must be performed within 17 seconds for the initial call attempt and, if it is not performed within that time frame, the phone must switch to another system.

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[99] *Second Report and Order* at App C.

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ATTACHMENT 1

***In re Wireless Telephone 911 Calls Litigation*, MDL Docket No. 1521, Civil Action No. 03-CV-2597, Memorandum Opinion (N.D. Ill. Sept. 3, 2003) ("*Referral Order*")**

ATTACHMENT 2

Review of Technical Standards for Wireless 911 Call Completion and Technical Record of the *Second Report and Order*

REVIEW OF TECHNICAL STANDARDS FOR WIRELESS 911 CALL COMPLETION AND TECHNICAL RECORD OF THE *SECOND REPORT AND ORDER*

In the FCC's 1999 *Second Report and Order*[1], the Commission adopted a rule requiring handsets capable of operating in the analog mode to utilize Commission-approved methods for increasing the likelihood that 911 calls were completed. In promulgating these requirements, the Commission sought to modify the analog requirements only in a minor fashion to ensure that 911 call processing methodologies were rapidly put in place. At no point in its deliberations did the Commission expressly discuss any major changes to the analog operational standard for the determination of how a call was successfully completed. Likewise, the FCC did not develop or discuss requirements for affected entities, such as wireless carriers, wireless infrastructure manufacturers, and local exchange carriers, to modify the industry-accepted manner of successfully completing wireless service calls.

This document discusses the requirements, from a technical perspective, of the *Second Report and Order* and the subsequent call processing method Orders placed upon handset manufacturers. In addition, the analog standard requirements are examined as well as the record developed in promulgating the call processing rule with which handset manufacturers must comply. Finally, analysis of the call processing requirements is provided.

A. Section 22.921 of the Commission's Rules Dictates Requirements for Handsets that are Capable of Operating in Analog Mode

Manufacturers of handsets capable of operating in the analog mode, are subject to the requirements of Section 22 921 of the Commission's rules, which was adopted in the *Second Report and Order.* Section 22.921 in its entirety states:

> 911-Only Calling Mode Mobile telephones manufactured after February 13, 2000 that are capable of operating in the analog mode described in the standard document ANSI TIA/EIA-553-A-1999 Mobile Station--Base Station Compatibility Standard (approved October 14, 1999--available for purchase from Global Engineering Documents, 15 Inverness East, Englewood, CO 80112), must incorporate a special procedure for processing 911 calls. Such procedure must recognize when a 911 call is made and, at such time, must override any programming in the mobile unit that determines the handling of a non-911 call and permit the call to be transmitted through the analog systems of other carriers. This

[1] *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, Second Report and Order, 14 FCC Rcd 10954 (1999) ("*Second Report and Order*").

special procedure must incorporate one or more of the 911 call system selection processes endorsed or approved by the FCC.

47 C.F.R §22.921.

In the *Second Report and Order*, the Commission, against the opposition of the Wireless Consumers Alliance ("WCA" or "Alliance"),[2] endorsed three different 911 call processing methods: Adequate/Strongest Signal, Automatic A/B Roaming – Intelligent Retry ("AB-IR") and Selective Retry. In addition, the Commission delegated authority to the Wireless Telecommunications Bureau ("WTB") to approve modifications to these processes as well as new methods.[3] Subsequent to the *Second Report and Order*, the WTB approved three additional call processing methods for Nokia, Ericsson and Motorola. Each of these methods built upon the foundation of the AB-IR method.

B. The Analog Cellular Telephone Standard Used by the Wireless Industry and Cited by the FCC in Section 22.921, TIA/EIA 553A, Determines that a Call Is Completed When the Call Reaches "Conversation State"

The TIA/EIA standard for analog mobile/base station compatibility dictates the requirements for the handling of analog mobile phone transmissions.[4] The compatibility requirements for mobile phones are those of interest in the processing of 911 calls by the handset. TIA/EIA 553A contains the fundamental signaling compatibility requirements for handsets and, if strictly followed, a mobile station technically will be able to signal a base station.[5] In particular, the standard establishes a hierarchy for all analog mobiles to follow to ensure compatibility with analog base stations. Each mobile, in order to be compatible, must utilize the security and identification codes and numbers, perform appropriate signaling supervision, detect malfunctions, process calls, and use the standardized signaling formats contained within TIA/EIA 553A to be in compliance with the standard and ensure compatibility.[6]

In the case of understanding the requirements for call processing, Section 2.6 of TIA/EIA 553A contains all pertinent requirements for a mobile station to access an analog base station successfully. Summarized below is the complete path dictated by TIA/EIA 553A for all analog handsets to employ.

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[2] WCA and its predecessor argued for approval of the Adequate/Strongest Signal standard as the exclusive methodology for 911 call completion.

[3] *See Second Report and Order* ¶ 97.

[4] *See* TIA/EIA-553-A, *Mobile Station – Base Station Compatibility Standard*, (November 1999) ("TIA/EIA 553A").

[5] *Id.* at ii.

[6] *Id.* at vii-viii.

Initialization. When a user initially turns on a handset, the mobile begins what is termed "initialization." This requires the retrieval of analog system parameters such as overhead information and a scan of the dedicated control channels to determine the most appropriate control channel for call setup. After this initial process, the handset then selects a paging channel and verifies the overhead information.[7]

Idle. Following initialization, the handset enters the "idle" state. This is the state that most users are familiar with, where the handset is powered on and has a message on the mobile screen such as "ready." At this point, the paging channel has been acquired and overhead information is consistently verified (each subtask within the idle state is executed at least every 46.3 msec) to ensure that the selected paging channel remains available and acceptable for initiation of a call. From the idle state, a user typically would enter the number to be called and hit "send" to begin the call initiation process. Additionally, the mobile constantly looks for a "power down" command (which the user selects to turn the handset off or the handset selects if the battery is exhausted) during this state as well.[8]

System Access. When a user enters a number to be called and hits "send," the mobile begins the "system access" process. The handset examines the signal strength of the access channels and chooses up to two channels with the strongest signal strength. The mobile then tunes to the strongest access channel and initiates an access attempt "counter." Next, overhead information is updated (and must be completed within 1.5 seconds) prior to selection of a reverse control channel (i.e., handset to base station). The reverse control channel "seizure" occurs via the monitoring of the "busy/idle bit" and a time limit is imposed on this process as well. The mobile (i.e., the handset) then awaits the assignment of a voice channel via the "initial voice channel designation message " If the voice channel assigned has a channel number with the set allocated to cellular systems, the mobile station tunes to the designated voice channel, turns on the transmitter at the power level indicated by the voice mobile attenuation code ("VMAC") field of the initial voice channel message, turns on the supervisory audio tone ("SAT") transponder, and sets the stored SAT Color Code ("SCC") to the value of the SCC field of the initial voice channel message. While monitoring of many other messages and orders from the analog system continues to occur, at this point the handset enters "Conversation State" if everything has worked properly. During Conversation State, monitoring of the SAT signal continues to occur as well as monitoring of any orders or messages from the handset (power turned off, loss of radio signal, etc.), *but no other processes associated with call setup occurs because the call is considered completed by the TIA/EIA 553A standard*[9]

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[7] *Id.* at 34-38.

[8] *Id.* at 38-44.

[9] *Id.* at 44-59.

C. Conversation State Is Defined as the Successful Assignment of a Voice Channel; in Analog Mode the Time to Get to Conversation State Could be as Long as 17 Seconds

As discussed in more detail above, once a voice channel has been successfully assigned, Conversation State is reached according to the analog compatibility standard. In the *Second Report and Order*, the Commission explicitly exempted the time it takes an analog handset to reach the idle state.[10] As such, the worst-case time scenario for setting up an analog wireless call is 17 seconds. This timeline is dictated by two timers present in the TIA/EIA 553A standard. First, when the system access task is initiated a timer, called the access timer, is set to a maximum of 12 seconds.[11] Second, a fade timer is started upon the initiation of transmission on a voice channel. This timer is set to 5 seconds, and if the radio link between the mobile and base station loses continuity for more than 5 seconds, the mobile will turn off its transmitter and begin the system access task yet again.[12]

D. Neither TIA/EIA 553A nor its Companion Technical Service Bulletin (TSB 119) Provides for Monitoring or Other Call Supervision of the Voice Channel to Determine that a Call Has Gone Past Conversation State

As is clear from the detailed discussion of analog call setup above, there is no monitoring of the quality of voice channel communication for an analog wireless call. The standard strictly monitors the SAT between the mobile and base station to ensure that radio link continuity is maintained.

To implement the requirements of the *Second Report and Order*, TIA/EIA 553A was updated by a technical services bulletin, TSB119. TSB119 made several, comparatively minor changes to TIA/EIA 553A – a process that nonetheless took 16 months to complete. In particular, an emergency call status flag was created to highlight when a 911 call was being attempted.[13] It also made provision for the use of visual and/or audio feedback when an emergency call was placed [14] Finally, it enabled the capability of the mobile to set the emergency call failure status so that the handset would know that an emergency call had failed to complete (i.e , reach Conversation State), allowing automatic retrying of call setup for emergency calls.[15]

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[10] *See Second Report and Order* at n.52 ("It should be noted that an earlier task, Initialization (3 seconds) will ordinarily be completed before the call is sent.").

[11] *See* TIA/EIA 553A at 44

[12] *Id.* at 54

[13] *See* TIA/EIA Telecommunications Systems Bulletin, *Enhanced System Access Procedures for E911 Calls for Analog Cellular*, at 3 (Oct. 2000) ("TSB119").

[14] *Id.* at 5.

[15] *Id.* at 5-10

Of critical importance, however, no voice quality or signal monitoring other than what already occurred in TIA/EIA 553A was added with the adoption of TSB119. Rather, TSB119 made only minor changes to TIA/EIA 553A to enable an emergency call processing mode rather than any wide scale changes to the standard. This bulletin updated the analog standard well after the promulgation of the FCC requirements and adoption of several of the call processing methods.

E. Under Current Standards, it is Technically Infeasible for the Changes Promulgated for 911 Call Processing in the Second Report and Order, Nokia Order, Motorola Orders, and Ericsson Order to Have Required the Substantial Changes Dictated by Plaintiffs' View of Call Processing

Under TIA/EIA 553A and TSB119 a successfully completed analog call is one that reaches Conversation State However, plaintiffs' interpretation of call completion—that a call is not "complete" until it is passed on to and received at the landline carrier—would have required extensive, time-consuming, and expensive changes in the analog standard.

For a mobile handset functioning in analog mode to be capable of determining whether a base station actually has received a voice channel transmission, as plaintiffs suggest, the mobile handset would have needed significant software, and potentially hardware, modifications. Manufacturers would have had to add some form of "answer supervision" technology—a change that would be very difficult and could not be implemented by handset manufacturers acting alone. The technology would need to confirm that the handset user was receiving good quality voice communication coming from the 911 operator, that the network was receiving good quality voice communications at the base station from the handset, and that the network was passing that traffic on to the 911 operator. Additionally, the base station would have to be reprogrammed to send a confirmation message to the mobile handset that a voice communications was received. Accordingly, to implement plaintiffs' approach other parties, such as base station manufacturers and local exchange carriers, would have needed to take action. No such requirements were imposed by the Commission on other parties

In addition, plaintiffs' interpretation of "call completion" would require more than just handset software and hardware modifications. TIA/EIA 553A would have required extensive modification. This existing standard simply does not contemplate any form of answer supervision such as voice channel adequacy or confirmation of voice communication delivery.

F. That Current Standards Equated Successful Call Completion with the Assignment of a Voice Channel (or Conversation State) was Widely Discussed in the Record of the Second Report and Order

The record of the *Second Report and Order* is replete with indications that the wireless carriers and manufacturers defined "call completion" as the reaching of "Conversation State." In particular, there were extensive discussions on the record by WCA and the Cellular Telecommunications and Industry Association ("CTIA") concerning call completion. Moreover, the FCC staff held discussions concerning call completion in May 1999, prior to the adoption of the *Second Report and Order* and after adoption. The FCC staff reported that its understanding of call completion and call setup indicated that. "The wireless handset and base station monitor

call set-up by means of the Supervisory Auditory Tone (SAT), which is transmitted by the base station and transponded back by the handset."[16] and "the handset would not receive any signal from the wireline carrier when a call is ringing."[17] This additional information provided to the record, well after the adoption of the *Second Report and Order* and even after the release of the text of the item indicates that the FCC staff clearly understood that requirements to ensure that call completion included a confirmation that the call is ringing at the 911 PSAP were inconsistent with the operations of mobile networks. As such, any attempt to ensure such a feature was implemented would have required significant discussion in the *Second Report and Order* of the requirements because such a network system monitoring requirement would require dramatic changes in the underlying analog mobile phone standard.

Moreover, the record shows that WCA clearly understood when calls would be deemed complete under A/B-IR:

- "... the handset deems the call connected (the handset is not able to detect the absence of voice conversation) and will not switch to the other side when using Automatic A/B Roaming, even though no voice communication is possible. Any time out or disconnect order is considered by the handset to be a usual termination of the call."[18]

- "Under Automatic A/B Roaming, once the handset reaches 'Conversation State' it considers it's [sic] task to be completed without regard to whether or not any 'conversation' is possible and the call will not be switched to the other side even if all the calling party hears is dead air "[19]

- "The handset thinks that the call went through when it receives assignment of a voice channel and returns SAT."[20]

- "This is because once the cellular base station has assigned a voice channel and the handset has tuned to that voice channel and returned a supervisory audio tone, the attempt to connect the call to the 911 operator has been satisfactorily concluded in so far as the system is concerned This does not mean that a conversation is possible

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[16] *Ex parte* presentation of Dan Grosh, WTB Policy Division, FCC, CC Docket No. 94-102, at 2 (filed July 22, 1999) (summarizing conversations between WTB staff and wireless industry between May 5 and 20, 1999)

[17] *Id.*

[18] *Ex parte* presentation of Wireless Consumers Alliance, Inc., CC Docket No. 94-102, at 2 (filed Mar. 1, 1999).

[19] *Id.* at 6.

[20] *Ex parte* presentation of Wireless Consumers Alliance, Inc., CC Docket No. 94-102, at n.1 (filed April 6, 1999).

over the assigned voice channel or that the call was even connected to the 911 operator."[21]

Additionally, WCA clearly understood that its preferred call completion methodology would require a change in the underlying standard for analog calls:

- "In order for the A/B or B/A to meet an equivalent level of service as the Alliance's Strongest Signal proposal, a method of determining adequacy of voice channel service must be established and the handset commanded to rescan all forward control channels upon a loss of voice channel capability. This process **WILL** require a revision of the 553 Standard, since the subscriber units do not currently possess this function."[22]

Finally, the wireless industry, primarily represented by CTIA, continually noted the benefits of AB-IR and specified when calls would be deemed complete under A/B-IR:

- In response to a question raised by the Commission on when AB-IR would consider a call completed,[23] CTIA responded: "The only reprogramming required to implement 'Automatic A/B Roaming' is to enable the handset to recognize initiation of 9-1-1 emergency calls and remove the alternate carrier restrictions, if enabled, as described below. In the presence of a decodable Forward Control Channel (FOCC) from the preferred carrier, the call would never be switched to the alternate carrier. Having selected a FOCC, Automatic A/B Roaming would consider the call 'completed' (i.e., cease autonomous processing and return idle) when any of the following criteria are met:

  a) an origination request was successfully sent on the Reverse Control Channel (RECC) (i.e., the busy/idle bit on the FOCC was idle before the RECC transmission of the request); or

  b) the number of retries to accomplish sending the origination request reached the limit (normally at least 10); or

  c) the origination timer (6-12 seconds) expired."[24]

- "Neither Automatic A/B Roaming or Strongest/Adequate Signal changes the standard call setup methodology of making one concerted attempt at setting up the call then

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[21] *Ex parte* presentation of Wireless Consumers Alliance, Inc., CC Docket No. 94-102, at 2 (filed April 14, 1999)

[22] *Ex parte* presentation of Ad Hoc Alliance for Public Access to 911, CC Docket No. 94-102, Trott Report at 4 (filed Mar. 20, 1998) (emphasis in original).

[23] *Ex parte* presentation of CTIA, CC Docket No. 94-102, at 3 (filed Jan. 29, 1999).

[24] *Ex parte* presentation of CTIA, CC Docket No. 94-102, at 2 (filed Feb. 22, 1999).

allowing the user to initiate another attempt if the resulting call failed to reach a satisfactory conclusion "[25]

- "A call attempt can be considered *completed* when the analog mobile phone successfully confirms SAT (supervisory audio tone) on the Voice Channel and enters the '*Conversation State*' "

- "If the call fails to complete when a 9-1-1 call attempt is made pursuant to subsection (b)(1), the analog cellular mobile station must automatically make a second attempt to complete the call by using the next strongest control channel on the preferred carrier's network, provided that to 'complete the call' means to reach Conversation State as defined in ANSI TIA/EIA 553-A."[26]

- "If all attempts on both the preferred and non-preferred carrier are unable to complete (reach Conversation State) when a 9-1-1 call attempt is made, ..."[27]

- "When a 9-1-1 call attempt is made, if the call fails (does not reach conversation state) and the analog mobile phone is tuned to the strongest or next strongest access channel on the current side the call is then re-attempted on the other side (non-preferred system)."[28]

Furthermore, the wireless industry, through CTIA comments, clearly stated time and again that AB-IR operated within the existing analog compatibility standards:

- "Automatic A/B Roaming enhances emergency call completion, and is compatible with existing network registration, call set-up and processing of analog cellular calls, and works within existing technical standards."[29]

- "Automatic A/B Roaming can be implemented within the existing industry standard with no need for an unprecedented change to the cellular system compatibility specifications requested by the Ad Hoc Alliance."[30]

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[25] *Id.* at 3.

[26] *Ex parte* presentation of CTIA, CC Docket No. 94-102, at 2 (filed Mar. 2, 1999).

[27] *Id.*

[28] *Ex parte* presentation of CTIA, CC Docket No 94-102, at 2 (filed Mar. 26, 1999).

[29] *Ex parte* presentation of CTIA, CC Docket No. 94-102, Attachment at 3 (filed Dec. 4, 1998).

[30] *Id.* at Attachment 4.

The standards for the completion of wireless 911 calls, contained in TIA/EIA 553A and TSB119 and recognized in the Commission's rules, do not provide for the extensive signaling and call supervision that plaintiffs' interpretation would require. Accordingly, plaintiffs' interpretation is clearly inconsistent with those standards. By contrast, Joint Petitioners' interpretation that a wireless 911 call is deemed complete with the assignment of a voice channel fully comports with TIA/EIA 553 and TSB119. A review of the technical record of Docket 94-102 reveals that the parties clearly understood that under A/B-IR a call would be deemed complete with the assignment of a voice channel (i.e., when a call has reached "Conversation State"). While WCA referred to extensive changes that would be required in order for a handset to understand that a call had reached a point beyond "Conversation State," those changes were not specified, and, as a result, they were not discussed in the record of the proceeding. Neither were those necessary changes discussed in any notice issued by the Commission or in the *Second Report and Order* itself Indeed, the FCC never refuted or changed the methodology used by the industry for call completion.